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09/424,244

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EXAMINER

HINES, JANA A

ART UNIT

PAPER NUMBER

1645

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DELIVERY MODE

11/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                       |  |
|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/424,244 | <b>Applicant(s)</b><br>STRAUSS ET AL. |  |
|                              | <b>Examiner</b><br>JaNa Hines        | <b>Art Unit</b><br>1645               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 15-24 and 26-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-24 and 26-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***DETAILED ACTION***

***Amendment Entry***

1. The amendment filed August 4, 2008 has been entered. Claims 1-14 and 25 have been cancelled. Claims 15 and 29 have been amended. Claims 15-24 and 26-29 are under consideration in this office action.

***Withdrawal of Objections and Rejections***

2. The following objection and rejections have been withdrawn in view of applicants' amendments and arguments:

- a) The objection of claim 29;
- b) The rejection of claim 15 under 35 U.S.C. 112, second paragraph.

***Response to Arguments***

3. Applicant's arguments filed August 4, 2008 have been fully considered but they are not persuasive.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The rejection of claim 17 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, is maintained.

a) Applicants urge that there is sufficient antecedent basis for claim 17, and uses MPEP 2173.95(e) for support. However, the example which applicants refer to as having antecedent basis is not equivalent to the instant claim because the language is different. The claim recites the limitation “the bacteria cell wall” which is not equivalent to “the outer surface of said sphere”. There is still insufficient antecedent basis for the limitation in the claim, despite applicants’ opposition. Therefore, applicants’ assertions are not found persuasive and the rejection is maintained.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The rejection of claims 15-16, 20, 24, 26 and 29 under 35 U.S.C. 102(b) as being anticipated by Samuelson (J. Bact., 1995. Vol. 177(6): 1470-1476) is maintained for reasons already of record.

The rejection is on the grounds that Samuelson teach a method for detecting whether a substance affects the covalent bonding of polypeptides to the surface of Gram-positive bacteria, comprising the following steps: a) providing a sample of Gram-positive bacteria which contain or produce at least one enzymatic reporter substance which is or can become covalently bonded to the surface of the Gram-positive bacteria, said at least one reporter substance having a different enzymatic activity when not

covalently bonded to the surface of the Gram-positive bacteria from that exhibited when it is covalently bonded to the surface of the Gram-positive bacteria; b) contacting the sample with a possible active substance; c) assaying the enzymatic activity of the reporter substance of the Gram-positive bacteria of the sample; and d) correlating the enzymatic activity of the reporter substance to a capability of the possible active substance to affect the covalent bonding of polypeptides to the surface of gram-positive bacteria; to thereby detect whether the possible active substance is a substance that affects the covalent bonding of polypeptides to the surface of gram-positive bacteria.

### ***Response to Arguments***

6. Applicant's arguments filed August 4, 2008 have been fully considered but they are not persuasive.

Applicants' argue that Samuelson fails to meet the limitation of claim 21, drawn to the method characterized in that said hybrid polypeptide has a succession of the following sequence segments: N-terminal signal peptide, enzyme, sequence segment having the sequence LPXTG (SEQ ID NO: 11), hydrophobic sequence segment, and charged sequence segment.

In response to applicant's argument that the Samuelson references fail to show certain features of applicant's invention, such as the hybrid polypeptide, it is noted that the features upon which applicant relies i.e., cell surface bound receptors containing an LPXTGX motif, are not recited in the rejected claims. It is noted that claim 21 is not

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rejected by Samuelson. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore, applicants' arguments about Samuelson not meeting the limitations of claim 21 are irrelevant.

Samuelson clearly teaches at least one enzymatic reporter substance which is or can become covalently bonded to the surface of the Gram-positive bacteria, said at least one reporter substance having a different enzymatic activity when not covalently bonded to the surface of the Gram-positive bacteria from that exhibited when it is covalently bonded to the surface of the Gram-positive bacteria. Samuelson teaches recombinant *S. carnosus* cells were grown and subjected to the enzymatic assay, performed in an ELISA plate format, wherein a positive color response was found for the cultivation harboring plasmids. This demonstrates that hybrid receptors with serum albumin binding capacity were accessible on the cell surface. Thus, the rejection is maintained.

Furthermore, it is noted even though the Samuelson reference, does not meet the limitations of claim 21, this fact does not prevent the references from meet the limitations of rejected claims 15-16, 20, 24, 26 and 29. Therefore, Applicants assertion that "since the PTO admits "Samuelson et al ....do not teach the.. hybrids polypeptide succession," the PTO acknowledges that at least one limitation on the rejected claims is absent from Samuelson and, accordingly, the PTO admits that anticipation of the rejected claims is negated" is incorrect. The Samuelson has not rejected claim 21, therefore the anticipation of the claims is not negated. The standard for anticipation is

that all the limitations of the rejected claims be not, not each and every claim of record. Therefore, applicants' arguments are not persuasive and the rejection is maintained.

Applicants argue that Samuelson fails to teach 1) contacting the sample with a possible active substance; and 2) correlating the enzymatic activity of the reporter substance to a capability of the possible active substance to affect the covalent bonding of polypeptides to the surface of gram-positive bacteria. However, Samuelson's method teaches contacting the sample and the bacteria for analysis by FACS analysis (page 1472). Samuelson teaches correlating the enzymatic activity of the reporter substance by the successful implementation of flow cytometry and the use of fluorescence-labeled secondary antibody and a primary antibody reactive with the ABP region of the hybrid receptors for staining the cells to detect the capability of the active substance which affect the covalent bonding of polypeptides to the surface of gram-positive bacteria.

Applicants urge that since each limitation does not "identically appear" in Samuelson, the reference fails to anticipate the rejected claims. For anticipation under 35 U.S.C. 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly and any feature not directly is inherently present.

Applicants argue that Samuelson does not teach the capability of a substance to affect the covalent bonding of polypeptides to the surface of gram-positive bacteria with the enzymatic reporter substance which is or can become covalently bonded to the surface of the Gram-positive bacteria. However as previously stated, Samuelson teaches cell surface display of recombinant enzymatic proteins on *Staphylococcus carnosus* along with the use of enzyme-coated bacteria because enzymes with retained

activity are displayed on the bacterial cells. Samuelson teach methods of contacting the sample containing HSA and the bacteria and then using colorimetric assay for detection of a color change. Therefore, applicants' arguments are not persuasive and the rejection is maintained.

Applicants argue that Samuelson requires a washing/fractionating step unlike the instant claims which avoid the need for additional the step. However, the transitional term "comprising", which is synonymous with "including," "containing," or "characterized by," is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. See, e.g., *Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed. Cir. 2004) ("like the term comprising,' the terms containing' and mixture' are open-ended."); *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003) ("The transition comprising' in a method claim indicates that the claim is open-ended and allows for additional steps."); *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim.); *Moleculon Research Corp. v. CBS, Inc.*, 793 F.2d 1261, 229 USPQ 805 (Fed. Cir. 1986); *In re Baxter*, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); *Ex parte Davis*, 80 USPQ 448, 450 (Bd. App. 1948) ("comprising" leaves "the claim open for the inclusion of unspecified ingredients even in major amounts"). Therefore, applicants' argument is not persuasive because the claim



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language is "open ended" and does not eliminate additional steps taught by the prior art; therefore the rejection is maintained.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The rejection of claims 18-19, 21, 27-28 under 35 U.S.C. 103(a) as being unpatentable over Samuelson J. Bact., 1995. Vol. 177(6): 1470-1476) in view of Schneewind (Science, 1995. Vol. 268:103-105) is maintained for reasons of record.

The rejection is on the grounds that it would have been obvious at the time of applicants invention to modify the method of Samuelson (J. Bact., 1995) with polypeptides which effect the cell wall, pathogenicity, the use linker peptides and teach cell wall exchange as taught by Schneewind (Science, 1995), because Schneewind (Science, 1995) teaches that such modification are drawn to the structure of the cell wall anchor of surface proteins and designed an expressed hybrid molecule requires no more than routine skill.

### ***Response to Arguments***

8. Applicant's arguments have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been prima facie obvious at the time of applicants invention to modify the method of Samuelson (J. Bact., 1995) with polypeptides which effect the cell wall, pathogenicity, using linker peptides and teaching cell wall exchange as taught by Schneewind (Science, 1995), because Schneewind (Science, 1995) teach that such modification are drawn to the structure of the cell wall anchor of surface proteins and designed an expressed hybrid molecule requires no more than routine skill.

Applicants argue that Schneewind does not teach a method for detecting active substances as recited by the instant claims. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It is noted that Samuelson (J. Bact., 1995) has been discussed above, and contrary to applicants assertions, one of skill in the art would have been motivated to make such modifications because Schneewind teaches hybrid molecule can be

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released by controlled enzymatic activity. Thus, the art teaches the claimed reporter substance and the detection of enzymatic activity. Furthermore no more than routine skill would have been required to incorporate such modifications when the art teaches novel targets for antibacterial therapy found by the release of peptidoglycan in gram-positive bacteria may be caused by physiological turnover and the responsible enzyme. Therefore applicants' arguments are not persuasive and the rejection is maintained.

9. The rejection of claims 22 and 23 under 35 U.S.C. 103(a) as being unpatentable over Samuelson J. Bact., 1995. Vol. 177(6): 1470-1476) and Schneewind (Science, 1995. Vol. 268:103-105) further in view of Strauss et al. (Mol. Microbio. 1996. Vol. 21(3): 491-500) is maintained for reasons already of record.

The rejection was on the grounds that it would have been obvious at the time of applicants' invention to modify the method of Samuelson (J. Bact., 1995) and Schneewind because Strauss et al., teach that proenzymes are usable with the well known method of identifying substances which affect the covalent bonding of polypeptides to the surface of gram-positive bacteria.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the

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references themselves or in the knowledge generally available to one of ordinary skill in the art. In this case, no more than routine skill would have been required to use of proenzyme and determine the change in enzymatic activity when the Samuelson (J. Bact., 1995) Schneewind and Strauss teach that changes in enzymatic activity can occur without radically altering their catalytic activity thereby making them useful in said methods of identification.

In response to applicant's argument that Strauss is art with a different focus, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, contrary to applicants' assertion, Strauss et al., teaches *in vivo* immobilization of enzymatically active polypeptides on the cell surface of *Staphylococcus carnosus*, the same gram-positive bacteria used in the prior art references. Strauss demonstrates immobilization of normally soluble proenzyme enzymes on the cell wall of *S. carnosus*, without radically altering their catalytic activity, by fusing them to a cell wall immobilization unit, consisting of a suitable cell wall spanning region and a standard cell wall sorting signal. Therefore, it would have been obvious at the time of applicants' invention to modify the method of Samuelson (J. Bact., 1995) and Schneewind because Strauss et al., teach that proenzymes are usable with the well known method of identifying substances which affect the covalent bonding of polypeptides to the surface of gram-positive bacteria.

In response to applicant's argument that the examiner's conclusion of obviousness is misplaced because one skilled in the art would not arrive at the underlying concept of using an enzymatic reporter having activity that differs depending on whether or not it is covalent bond to the cell surface. However, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). One of skill in the art would have been motivated to make such modifications because Strauss et al., teach cell wall immobilization and the construction of a hybrid protein, just as taught by Samuelson (J. Bact., 1995) and Schneewind; therefore no more than routine skill would have been required to use an alternative functionally equivalent hybrid in a well known method of identification. Furthermore, no more than routine skill would have been required to use of proenzyme and determine the change in enzymatic activity when the art teaches that changes in enzymatic activity can occur without radically altering their catalytic activity thereby making them useful in said methods of identification. Therefore applicants' arguments are not persuasive and the rejection is maintained.

***Conclusion***

10. No claims allowed.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ja-Na Hines whose telephone number is 571-272-0859. The examiner can normally be reached Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Robert Mondesi, can be reached on 571-272-0956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/JaNa Hines/  
Examiner, Art Unit 1645

/Mark Navarro/

Primary Examiner, Art Unit 1645